

Claims

1. Method for improving the plastic deformability of high-strength molded objects of solid, metallic glasses from basic zirconium, titanium and hafnium alloys, characterized in that hydrogen is introduced into the molded objects at a concentration below that at which brittle hydrides are formed.
2. The method of claim 1, characterized in that the hydrogen is introduced into the molded object by means of electrochemically charging in an aqueous electrolyte or by means of a gas phase reaction.
3. The method of claim 2, characterized in that the electrochemical charging is carried out at a temperature ranging from 15°C to 80°C.
4. The method of claim 2, characterized in that the gas-phase treatment is carried out at a temperature of at least 15°C up to a temperature of 20°K above the glass transition temperature of the alloy of the respective molded object.
5. Molded objects, produced according to one of the claims 1 to 4, characterized in that the molded objects contain hydrogen, which is distributed homogeneously in the amorphous short-range order structure and/or in the form of hydrogen-induced local accumulations of ductile alloying components and/or in the form of hydrogen-induced precipitation of ductile, nanocrystalline phases with exclusion of brittle hydrides.
6. The molded objects of claim 5, characterized in that the hydrogen is present at a concentration ranging from 20 to 1500 ppm by weight.

7. The molded objects of claim 5, characterized in that the hydrogen is present at a concentration ranging from 20 to 1000 ppm by weight.

8. The molded objects of claim 5, characterized in that the hydrogen is present at a concentration ranging from 20 to 800 ppm by weight.

9. The molded objects of claim 5, characterized in that the hydrogen is present in beryllium-containing molded objects at a concentration ranging from 20 to 650 ppm by weight.